

Decimal Rounding Given Place Value

Jen Kershaw, M.ed

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AUTHOR

Jen Kershaw, M.ed

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CONCEPT

1

Decimal Rounding Given Place Value

Here you'll learn how to round decimals to a given place value.

Remember Jose and the sign from the last Concept? Well just when Jose thought his work was complete, Mr. Harris had a new challenge for him. Take a look.

Mr. Harris has given Jose the new task of making a sign that is half as small as the original sign. But Mr. Harris wants Jose to round to the nearest whole measurement when working on the sign. He can round up or down, whichever makes the most sense.

First, Jose needs to reduce each measurement in half. Here are the original measurements of the original sign.

- The original sign is $4.25' \times 2.5'$

If Jose divides each in half, the new measurements of the sign will be.

$$2.125' \times 1.25'$$

Jose knows that this will simply not work. He needs to round up or down to each whole measurement.

Do you know which measurements will make the most sense?

This Concept will show you how to round to a given place value. Then you will be able to help Jose.

Guidance

In the last Concept, you learned how to round decimals.

We can also use place value to help us in rounding numbers.

Once again, we are going to follow the same rules that we did when rounding whole numbers, except this time we will be rounding to the nearest whole or tens, hundreds, thousands, etc.

Round .345 to the nearest tenth

To help us with this, let's put the number in our place value chart.

TABLE 1.1:

Tens	Ones	Tenths	Hundredths	Thousandths	Ten Thousandths
	.	3	4	5	

Now we are rounding to the nearest tenth. The 3 is in the tenths place. The 4 is the digit to the right of the place we are rounding. It is less than 5, so we leave the 3 alone.

Our answer is .3.

Notice that we don't include the other digits because we are rounding to tenths. We could have put zeros in there, but it isn't necessary.

Round .567 to the nearest hundredth

To help us with this, let's use our place value chart again.

TABLE 1.2:

Tens	Ones	Tenths	Hundredths	Thousandths	Ten Thousandths
	.	5	6	7	

Now we are rounding to the nearest hundredth. The 6 is in the hundredths place. The 7 is the digit to the right of the hundredths place. Since a 7 is 5 or greater, we round up to the next digit. The 6 becomes a 7.

Our answer is .57.

Notice in this case that the five is included. Because it is to the left of the place we are rounding, it remains part of the number.

Now it's time for you to practice, round each number using place value.

Example A

Round to the nearest tenth, .892

Solution: .9

Example B

Round to the nearest hundredth, .632

Solution: .63

Example C

Round to the nearest thousandths, .1238

Solution: .124

Now back to Jose and the sign. Here is the original problem once again.

Mr. Harris has given Jose the new task of making a sign that is half as small as the original sign. But Mr. Harris wants Jose to round to the nearest whole measurement when working on the sign. He can round up or down, whichever makes the most sense.

First, Jose needs to reduce each measurement in half. Here are the original measurements of the original sign.

- The original sign is $4.25' \times 2.5'$

If Jose divides each in half, the new measurements of the sign will be.

$$2.125' \times 1.25'$$

Jose knows that this will simply not work. He needs to round up or down to each whole measurement.

When Jose looks at the first measurement, he realizes that he needs to round down to 2. The one in the tenths place is not larger than 5, so he will need to round down.

The other value is 1.25, once again Jose needs to round down to 1.

Here are the measurements for the new sign.

$$2' \times 1'$$

This is the answer.

Vocabulary

Here are the vocabulary words found in this Concept.

Round to use place value to change a number whether it is less than or greater than the digit in the number

Decimal a part of a whole written to the right of a decimal point. The place value of decimals is marked by THS (such as tenTHS, hundredTHS, etc).

Guided Practice

Here is one for you to try on your own.

Round .4561 in several different ways. Round to the nearest tenth. Round to the nearest hundredth. Round to the nearest thousandth.

Answer

We can begin with tenths. There is a five following the four, so we round up. .5

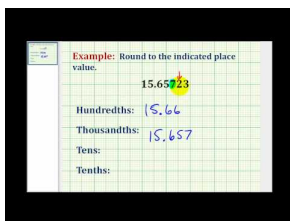
Next we round to the nearest hundredth. There is a six following the five, so round up. .46

Finally, we can round to the nearest thousandth. There is a one following the six, so our six stays the same. .456

Here are our answers.

Video Review

Here are videos for review.



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James Sousa, Rounding Decimals



MEDIA

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Practice

Directions: Round according to place value.

1. Round .45 to the nearest tenth

2. Round .67 to the nearest tenth
3. Round .123 to the nearest tenth
4. Round .235 to the nearest hundredth
5. Round .567 to the nearest hundredth
6. Round .653 to the nearest hundredth
7. Round .2356 to the nearest thousandth
8. Round .5672 to the nearest thousandth
9. Round .8979 to the nearest thousandth
10. Round .1263 to the nearest thousandth
11. Round .056 to the nearest tenth
12. Round .0091 to the nearest hundredth
13. Round .0918 to the nearest tenth
14. Round .0023 to the nearest thousandth
15. Round .1368 to the nearest hundredth